

CALIFORNIA WILDLIFE HABITAT RELATIONSHIPS SYSTEM
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B139 Gambel's Quail *Callipepla gambelii*
Family: Odontophoridae Order: Galliformes Class: Aves

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DISTRIBUTION, ABUNDANCE, AND SEASONALITY

A common resident of Colorado and Mojave Desert regions of southeastern California. Preferred habitats include desert riparian, and a wide variety of other desert types, especially near streams, springs, and water holes. Frequents both valleys and steep hillsides. Associated plants include *Baccharis glutinosa*, *Atriplex*, *Acacia*, *Prosopis*, *Opuntia*, and *Yucca* (Johnsgard 1973). Also found in *Tamarix*, but not common in pure stands that now dominate portions of the Salton Sea district (Garrett and Dunn 1981). Occurs along the Colorado River, west to Borrego Valley (San Diego Co.) and the Mojave River (San Bernardino Co.). Range extends north locally in the Mojave Desert to the Amargosa River, southern Inyo Co., and has been introduced successfully near Furnace Creek. Normally found at low elevations, but ranges up to 1636 m (5400 ft) in the Providence Mts. Successfully introduced to San Clemente Island, where now common (Grinnell and Miller 1944, Garrett and Dunn 1981). Range in southern California may have increased following irrigation of deserts.

SPECIFIC HABITAT REQUIREMENTS

Feeding: Forages in open habitats interspersed with patches of shrubs, trees or brush piles. Adult eats mostly plant material, gleaning forb, shrub, and grass seeds from the ground surface. Lotus, Lupinus, Astragalus, and Erodium are important (Gullion 1962, Grenfell et al. 1980). Succulent forbs and grasses are highly favored when available (Hungerford 1962). Chick feeds initially on insects (Harrison 1978), but soon acquires vegetarian diet.

Cover: Escape cover, usually provided by trees or tall shrubs, required; amount may control covey size (Grinnell and Miller 1944).

Reproduction: Nest built on the ground in a variety of desert habitats; shaded from direct sun by low foliage of trees or shrubs (Harrison 1978). Nest typically shallow depression lined with grasses or other vegetation. Unusual sites in *Tamarix* and orchard trees, at heights 2.1-6.1 m (7-20 ft), were reported by Neff (1941).

Water: Most commonly seen near water (Grinnell and Miller 1944). Miller and Stebbins (1964) did not observe a covey more than 2.4 km (1.5 mi) from permanent water at Joshua Tree National Monument. Although water may be critical in hot summer, it may not be required for drinking at other times, if temperatures and humidities are moderate, and succulent plants are available to eat (Gullion 1962).

Pattern: Frequents desert habitats, preferably with open foraging sites interspersed by escape cover, with permanent water nearby. In New Mexico, occupies patches of favorable habitat along irrigation ditches, but apparently croplands little used (Raitt and Ohmart 1966).

SPECIES LIFE HISTORY

Activity Patterns: Yearlong, diurnal activity. In early morning, travels by foot to a source of water, then feeds for several hours (Edminster 1954).

Seasonal Movements/Migration: Non-migratory in California (Grinnell and Miller 1944).

Home Range: Ten coveys in Nevada thorn scrub had home ranges varying from 7.6 to 38 ha (19-95 ac), with a mean of 14.3 ha (35.7 ac) (Gullion 1962). At the same study site, average population density was 0.64 ha (1.6 ac) per bird. In Arizona, Hensley (1954) determined breeding densities of 1 pair/6.6 ha (16.6 ac), and 1 pair/3.2 ha (8 ac) at 2 sites.

Territory: Male does not defend a territory, but becomes increasingly aggressive towards other males as nesting season approaches. This leads to dissolution of winter coveys (Raitt and Ohmart 1966).

Reproduction: Nesting season of variable duration, depending on rainfall, but usually begins in April and ends in June or July. Green feed necessary for successful nesting. In years of low winter or spring rainfall, may not nest at all (Malette and Slosson 1980). Pair strongly monogamous (Johnsgard 1973). Clutch size 12-14 eggs (Gorsuch 1934). Usually single-brooded, but may be double-brooded in wet years (Harrison 1978). Incubation 21-23 days. Female incubates while males guards, but both may brood. Chicks precocial; become independent by 4 wk (Harrison 1978).

Niche: Adapted to desert living; has tolerance for high temperatures (Henderson 1971) and saline drinking water (McNabb 1969). Closely related to California quail; the 2 ranges overlap near San Geronio Pass, Riverside Co. (Garrett and Dunn 1981). Hybrids have been recorded in this area. Also occurs with mountain quail at about 1500 m (5000 ft) in Joshua Tree National Monument. Vulnerable to Cooper's hawks, sharp-shinned hawks, great horned owls, bobcats, and snakes, which are described by Leopold (1977) as important predators of California quail. A favored game species; 350,000 to 400,000 harvested annually in California (Malette and Slosson 1980).

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